



U.S. Department of Energy

Office of River Protection

0058972

P.O. Box 450
Richland, Washington 99352

03-ED-025

FEB 20 2003

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Department of Ecology
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Kennewick, Washington 99336

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P.O. Box 47827
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EDMC

Dear Addressees:

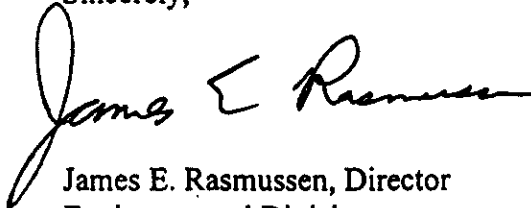
**TRANSMITTAL OF A HANFORD SITE AIR OPERATING PERMIT (AOP) OFF-PERMIT
CHANGE REQUEST AND NOTICE OF CONSTRUCTION (NOC) APPLICATION FOR
TANK FARMS DECONTAMINATION TRAILERS**

Attachment 1 to this letter contains Hanford Site Title V AOP off-permit change request and
Attachment 2 contains the NOC application for the Tank Farms decontamination trailers.

The U.S. Department of Energy requests the State of Washington Department of Ecology,
consistent with its role as the permitting authority, process the Hanford Site AOP off-permit
change request pursuant to Washington Administrative Code (WAC) 173-401-724, and that the
State of Washington Department of Health approve the NOC application for Tank Farms
decontamination trailers, pursuant to WAC 246-247-060. Approval is requested within 60 days
of receipt of this letter to place these trailers in service in response to an employee safety issue.

If you have any questions, please contact Dennis W. Bowser, of my staff, (509) 373-2566, or
Kathy Tollefson, CHG, (509) 373-9120.

Sincerely,


James E. Rasmussen, Director
Environmental Division

ED:DWB

Attachments: (2)

cc: See page 2

Attachment 1
03-ED-025

Hanford Site Title V Air Operating Permit
Off-Permit Change Request

HANFORD SITE AIR OPERATING PERMIT

Notification of Off-Permit Change

Permit Number: 00-05-006

This notification is provided to Washington State Department of Ecology, Washington State Department of Health, and the U.S. Environmental Protection Agency as notice of an off-permit change described as follows.

This change is allowed pursuant to WAC 173-401-724(1) as:

1. Change is not specifically addressed or prohibited by the permit terms and conditions
2. Change does not weaken the enforceability of the existing permit conditions
3. Change is not a Title I modification or a change subject to the acid rain requirements under Title IV of the FCAA
4. Change meets all applicable requirements and does not violate an existing permit term or condition
5. Change has complied with applicable preconstruction review requirements established pursuant to RCW 70.94.152.

Provide the following information pursuant to WAC-173-401-724(3):

Description of the change:
An application for "Radioactive Air Emissions Notice of Construction for Decontamination Trailers" was submitted for the installation and operation.
Date of Change: (To be provided in the agency approval order.)
The date the approval order is issued by Washington State Department of Health.
Describe the emissions resulting from the change:
Radioactive air emissions unabated doses are 3.5E-04 mrem per year total effective dose equivalent to the maximally exposed individual for the waste retrieval system setup and operation.
Radioactive air emissions abated doses are 3.5E-04 mrem per year.
Describe the new applicable requirements that will apply as a result of the change: (To be provided in the agency approval order.)
Conditions and limitations will be those identified in the approved order when issued by Washington State Department of Health.
For Hanford Use Only:
AOP Change Control Number: _____ Date Submitted: _____

Attachment 2
03-ED-025

Notice of Construction Application for the Tank Farms
Decontamination Trailers

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METRIC CONVERSION CHART

Table 1. Metric Conversion Chart.

Into metric units			Out of metric units		
If you know	Multiply by	To get	If you know	Multiply by	To get
Length			Length		
inches	25.40	Millimeters	millimeters	0.0393	inches
inches	2.54	Centimeters	centimeters	0.393	inches
feet	0.3048	Meters	meters	3.2808	feet
yards	0.914	Meters	meters	1.09	yards
miles	1.609	Kilometers	kilometers	0.62	miles
Area			Area		
square inches	6.4516	square centimeters	square centimeters	0.155	square inches
square feet	0.092	square meters	square meters	10.7639	square feet
square yards	0.836	square meters	square meters	1.20	square yards
square miles	2.59	square kilometers	square kilometers	0.39	square miles
acres	0.404	Hectares	hectares	2.471	acres
Mass (weight)			Mass (weight)		
ounces	28.35	Grams	grams	0.0352	ounces
pounds	0.453	Kilograms	kilograms	2.2046	pounds
short ton	0.907	metric ton	metric ton	1.10	short ton
Volume			Volume		
fluid ounces	29.57	Milliliters	milliliters	0.03	fluid ounces
quarts	0.95	Liters	liters	1.057	quarts
gallons	3.79	Liters	liters	0.26	gallons
cubic feet	0.03	cubic meters	cubic meters	35.3147	cubic feet
cubic yards	0.76456	cubic meters	cubic meters	1.308	cubic yards
Temperature			Temperature		
Fahrenheit	subtract 32 then multiply by 5/9ths	Celsius	Celsius	multiply by 9/5ths, then add 32	Fahrenheit
Force			Force		
pounds per square inch	6.895	Kilopascals	kilopascals	1.4504×10^{-4}	pounds per square inch

Source: *Engineering Unit Conversions*, M. R. Lindeburg, PE., Second Ed., 1990, Professional Publications, Inc., Belmont, California.

RADIOACTIVE AIR EMISSIONS NOTICE OF CONSTRUCTION FOR DECONTAMINATION TRAILERS

This document serves as a Notice of Construction (NOC) pursuant to the requirements of Washington Administrative Code (WAC) 246-247-060, and as a request for approval to construct pursuant to 40 Code of Federal Regulations (CFR) 61.07, for operation of mobile decontamination trailers.

Emergency decontamination of personnel who have external radioactive contaminants on clothing and/or skin could be required in the event of an accident during operations on the Hanford Site. Typically, such contamination would be treated immediately and directly at the location of the event (e.g., within a structure or job site). However, it might be necessary to provide additional decontamination capabilities in an isolated location near the job site to minimize personnel exposure and to minimize the potential for spread of radioactive contamination offsite. One decontamination trailer would be stationed in the 200 East Area, one in the 200 West Area, and would be available for temporary relocation throughout the Hanford Site.

The Total Effective Dose Equivalent (TEDE) from the 2001 calendar year Hanford Site air emissions (point sources, and diffuse and fugitive sources) was 0.049 millirem (DOE/RL-2002-20). The estimated potential TEDE to the Maximally Exposed Individual (MEI) resulting from the unabated radioactive emissions from operation of the decontamination trailer is $3.5\text{E-}4$ millirem per year. Due to no abatement equipment proposed for the decontamination trailer, the abated TEDE to the MEI is also $3.5\text{E-}4$ millirem per year.

1.0 LOCATION

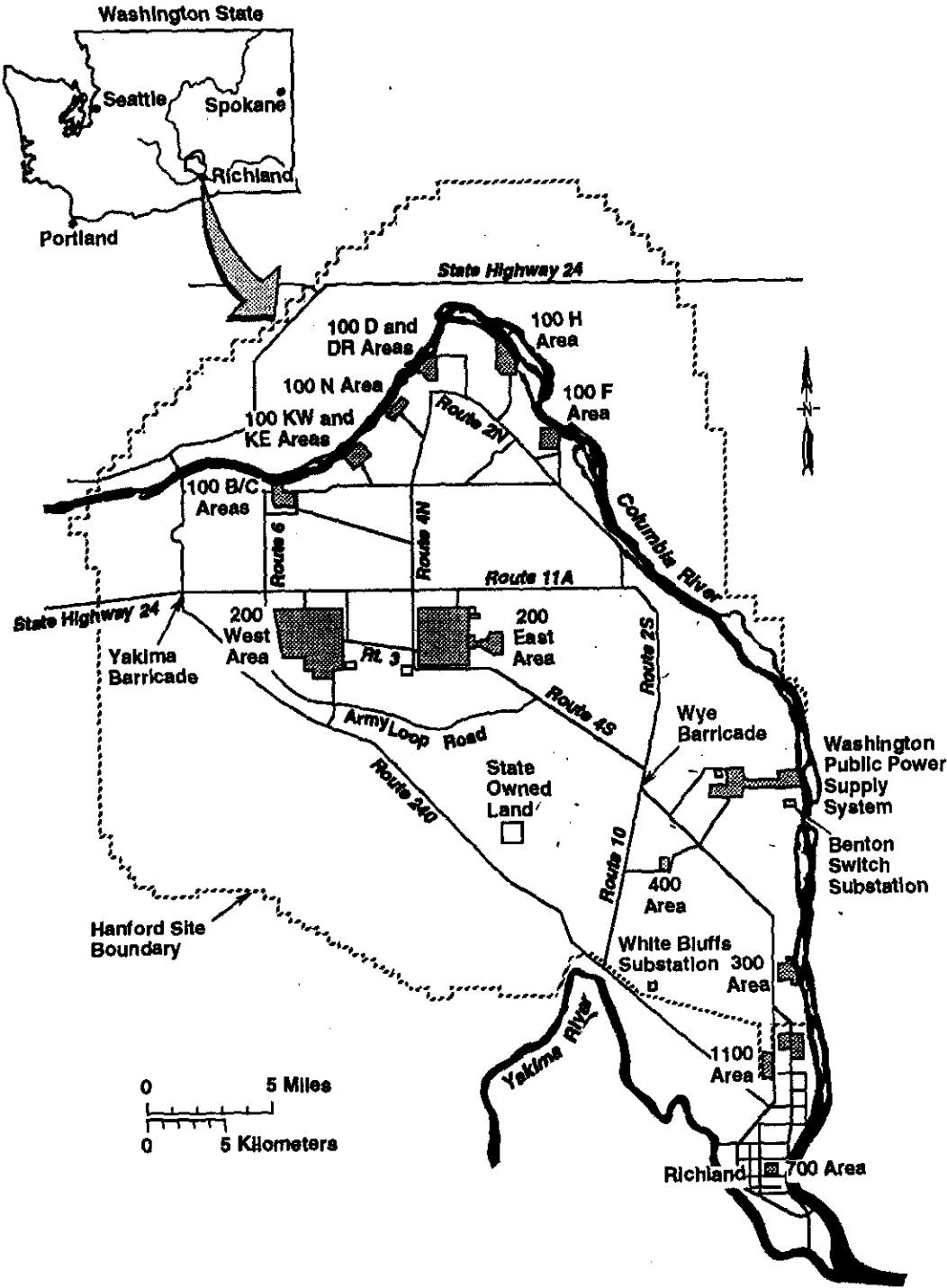
Regulatory Citation: "Name and address of the facility, location (latitude and longitude) of the emission unit(s)."

200 East and 200 West Areas covered in this NOC are located at:

U.S. Department of Energy, Richland Operations Office
Hanford Site
200 East and 200 West Areas
Richland, Washington 99352

Figure 1. shows the location of the 200 East and 200 West areas within the Hanford Site.

Figure 1. Hanford Site.



H97020271.4

2.0 RESPONSIBLE MANAGER

Regulatory Citation: "Name, title, address, and phone number of responsible manager."

The responsible manager's name and address are as follows:

Mr. R. J. Schepens, Manager
U.S. Department of Energy, Office of River Protection
P.O. Box 450
Richland, Washington 99352
(509) 376-6677

3.0 PROPOSED ACTION

Regulatory Citation: "Identify the type of proposed action for which this application is submitted:

- a. Construction of new emission unit(s);
- b. Modification of existing emission unit(s); identify whether this is a significant modification – significant means the potential-to-emit airborne radioactivity at a rate that could increase the TEDE to the MEI by at least 1.0 mrem/yr as a result of the proposed modification;
Modification of existing unit(s), unregistered."

The proposed action is to decontaminate personnel who have been contaminated with radioactive and/or chemical material. In an inadvertent release, personnel could be exposed to radioactive contamination. Initial decontamination activities would take place at the location of the release. If additional decontamination were warranted, personnel would be transferred to the closest decontamination trailer.

Decontamination activities would include removal and packaging of contaminated clothing and isolation/removal of skin contamination.

- Before transport of personnel to the decontamination trailer, appropriate measures would be taken to contain potentially dispersible contamination. To the extent practicable, contaminated clothing would be removed and disposed. Bagging, taping, or other appropriate means will isolate any remaining contamination; and
- Inside the trailer, any additional contaminated clothing would be removed, as appropriate, and packaged for disposition and/or laboratory analysis. Various means to reduce/remove skin contamination would be used as appropriate. For small areas of contamination, washing in the sink may be used. For gross contamination, the shower(s) may be used.

All liquids will be collected and contained in a catch tank located beneath the decontamination trailer. An additional bladder, for liquid collection, is available and will be used as needed.

The trailer vents directly to the atmosphere. The anticipated emissions associated with this activity are not significant¹ as defined by WAC-246-247-030(25).

4.0 STATE ENVIRONMENTAL POLICY ACT

Regulatory Citation: "If the project is subject to the requirements of the State Environmental Policy Act (SEPA) contained in Chapter 197-11 WAC, provide the name of the lead agency, lead agency contact person, and their phone number."

The proposed action categorically is exempt from the requirements of SEPA under WAC 197-11-845.

5.0 PROCESS DESCRIPTION

Regulatory Citation: "If the project is subject to the requirements of the State Environmental Policy Act (SEPA) contained in Chapter 197-11 WAC, provide the name of the lead agency, lead agency contact person, and their phone number."

The decontamination trailers are camper type trailers shown in Figures 2 and 3 (overall dimensions; eight feet wide and 36 feet long). The trailers will only be used when initial decontamination efforts at the immediate location of the contamination cannot be completed. Aside from a bathroom-type ventilation fan, the trailers have no active ventilation system. Direct releases to the atmosphere occur through the ceiling fan ductwork, door, and window openings.

All personnel decontamination work would be conducted in accordance with approved radiological control methods and/or industrial safety and hygiene using as low as reasonably achievable (ALARA) principles.

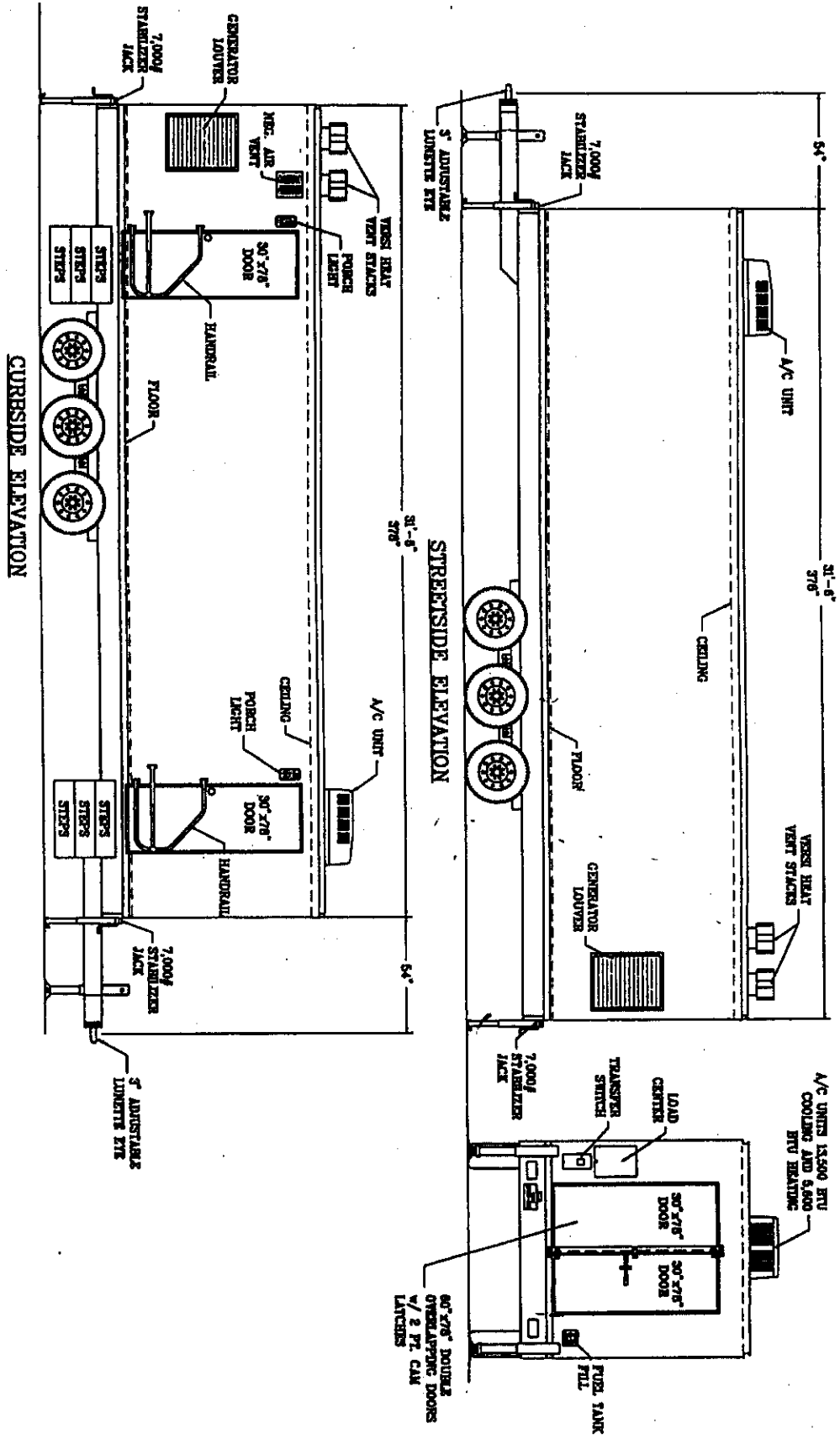
The general chemical and physical processes associated with decontamination activities in the decontamination trailer would consist of the following:

- Upon identification of the need for additional decontamination of personnel, affected individuals would be escorted to the nearest decontamination trailer;
- As appropriate, contaminated clothing, coverings, and/or articles would be removed and packaged for laboratory analysis and/or disposition, in accordance with As Low As Reasonably Achievable Control Technology (ALARACT) 4, Tank Farm ALARACT Demonstration for Packaging and Transportation of Waste and ALARACT 12, Tank Farm ALARACT Demonstration for Packaging and Transportation of Equipment and Vehicles, (HNF-4327);

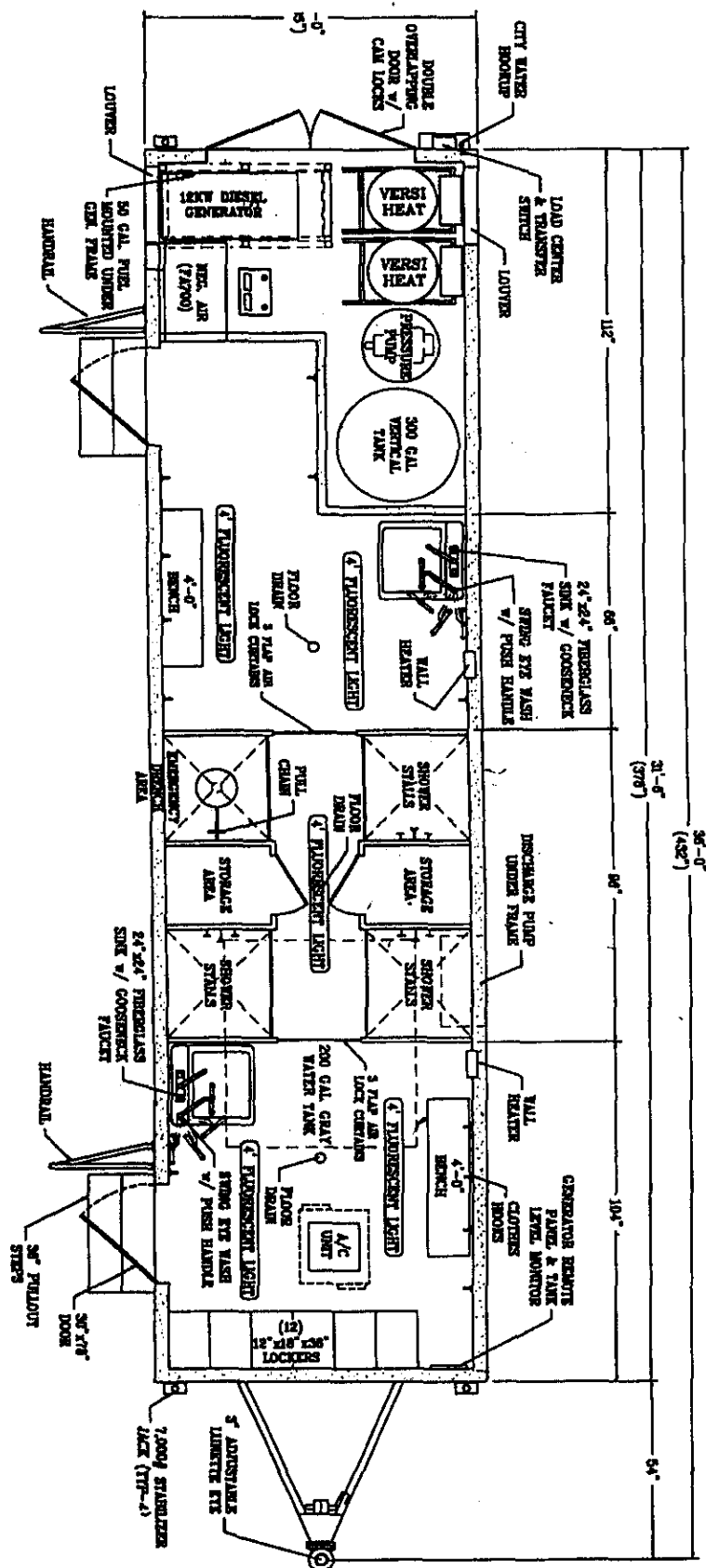
¹ Significant, as defined by WAC-246-247-030(25), "the potential-to-emit airborne radioactivity at a rate that could increase the TEDE to the MEI by at least 1.0 mrem/year as a result of the proposed modification."

- Personnel decontamination processes might include various methods or a combination of cleaning agents and/or chemicals. For example; soap and water, pre-moistened towelettes, removal of hair, abrasive soaps for toughened skin surfaces (e.g., hands and feet), and chelating agents;
- Spent decontamination solutions would be transferred from the holding tanks and/or bladder and containerized (e.g., packaged in absorbents in drums or placed in drums or carboys) and transported to existing facilities on the Hanford Site for disposal; and
- *Periodic maintenance inspection of the decontamination trailers will be performed without the use of containment or portable exhausters.*

Figure 2



7



6.0 PROPOSED CONTROLS

Regulatory Citation: "Describe the existing and proposed (as applicable) abatement technology. Describe the basis for the use of the proposed system. Include expected efficiency of each control device, and the annual average volumetric flow rate(s) in meters³/sec for the emission unit(s)."

There is no abatement control technology associated with the decontamination trailer which is vented with an unfiltered ceiling fan. Many of the emission controls used for the diffuse and fugitive emission during decontamination operations are administrative, based on ALARA principles and consist of ALARA techniques.

Airborne radioactive emissions resulting from the decontamination operations would be minimal due to the following:

- All activities will be conducted under the auspices of radiological control technicians (for radiological contaminations) and industrial safety and hygiene technicians (for chemical contaminations);
- The expected frequency of personnel contaminations requiring the use of the decontamination trailer would be very small (estimate less than 10 times per year);
- The maximum radionuclide inventory associated with personnel contamination would be very small. Initial decontamination would be conducted at the immediate location of the event; only residual contamination would be associated with personnel escorted to the decontamination trailer; and
- The likelihood of airborne particulate emissions being generated from any contaminated clothing would be very small as the significant portion of the radionuclide inventory would be contained with the matrix of the fabric. The methods and processes used to remove and package the clothing likely would not generate substantial airborne radionuclide contaminants. ALARACT 4 will be used for packaging and transporting contaminated clothing and waste.

7.0 DRAWINGS OF CONTROLS

Regulatory Citation: "Provide conceptual drawings showing all applicable control technology components from the point of entry of radionuclides into the vapor space to release to the environment."

There is no radionuclide abatement control technology equipment proposed for the decontamination operations, so conceptual drawings are not applicable. The emissions controls being used during these activities are defined administratively based on ALARA principles and established techniques. The decontamination trailer is ventilated through an unfiltered ceiling fan, door, and windows.

8.0 RADIONUCLIDES OF CONCERN

Regulatory Citation: "Identify each radionuclide that could contribute greater than ten percent of the potential-to-emit TEDE to the MEI."

Any radionuclide might be present in the decontamination trailer due to the radionuclide make-up of the tanks. The radionuclides of concern for this activity are calculation-based. As shown in Table 1, conservative dose/emission calculations are based on beta/gamma (strontium-90) and alpha (plutonium-239).

9.0 MONITORING

Regulatory Citation: "Describe the effluent monitoring system for the proposed control system. Describe each piece of monitoring equipment and its monitoring capability, including detection limits, for each radionuclide that could contribute greater than ten percent of the potential-to-emit TEDE to the MEI, or greater than 0.1 mrem/yr potential-to-emit TEDE to the MEI, or greater than twenty-five percent of the TEDE to the MEI, after controls. Describe the method with detail sufficient to demonstrate compliance with the applicable requirements."

The potential unabated offsite dose associated with this activity is calculated to be less than 0.1 millirem per year. Therefore, in accordance with 40 CFR 61, Subpart H, periodic confirmatory measurements (PCM) will be made to verify the low emissions.

The ambient air sampling program currently in effect for the Hanford Site will be used to verify low emissions. Currently this program measures and reports alpha and beta ambient air activity every two weeks. Isotopic analysis currently is determined and reported every six months. The sampling frequency is subject to change. However, the ambient air quality program remains the mechanism for satisfying the requirement for PCM.

The proposed PCM for the diffuse and fugitive emissions would consist of the radiological surveys during and at the completion of personnel decontamination operations (e.g., smears and direct readings on the interior of the decontamination trailers). The methods of PCM are not a direct measurement of effluent emissions. The methods are intended to demonstrate compliance by showing that the levels on the interior of the trailer, during a personnel decontamination operation, are controlled; the levels on the interior of the trailer after a decontamination operation will keep the trailer from being posted a Radiological buffer area for contamination control and/or a Contamination area. This would make the actual emissions below the estimated emissions, which would be based and calculated from the same contamination levels.

10.0 ANNUAL POSSESSION QUANTITY

Regulatory Citation: "Indicate the annual possession quantity for each radionuclide."

The annual possession quantity is based on beta-gamma (strontium-90) and alpha (plutonium-239). For conservatism, 1.4E-01 curies beta-gamma and 1.4E-04 alpha (including fixed contamination) would be assumed to be associated with personnel contamination in a calendar year.

11.0 PHYSICAL FORM

Regulatory Citation: "Indicate the physical form of each radionuclide in inventory: Solid, particulate solids, liquid, or gas."

The physical form of the radionuclides in the decontamination trailer would be solid and particulate solid.

12.0 RELEASE FORM

Regulatory Citation: "Indicate the release form of each radionuclide in inventory: Particulate solids, vapor, or gas. Give the chemical form and ICRP 30 solubility class, if known."

For (conservative) purposes of emission and offsite dose estimates, the release of radionuclides in the inventory presented in Section 10.0 are assumed to be in the form of particulate solids.

13.0 RELEASE RATES

Regulatory Citation:

- "a. New emission unit(s): Give predicted release rates without any emission control equipment (the potential-to-emit) and with the proposed control equipment using the efficiencies described in subsection 6 of this section.
- b. Modified emission unit(s): Give predicted release rates without any emissions control equipment (the potential-to-emit) and with the existing and proposed control equipment using the efficiencies described in subsection 6 of this section. Provide the latest year's emission data or emissions estimates.

The predicted release rates for each radionuclide, without any emission control equipment (unabated), are presented in Table 1 using the appropriate WAC 246-247-030 (21)(a) release fractions. The total potential release rates for the radionuclides of concern (unabated) are summarized in Table 2 (200 East Area). For conservatism it is assumed that all of the annual

possession quantity derived from the decontamination trailer is emitted from the 200 East Area. Due to no abatement controls proposed, the abated releases are the same as the unabated releases.

Table 1. Decontamination Trailer Inventory

Radionuclides	Physical Form	Inventory (Curies)	WAC 246-247 Release Fraction	Potential Release (curies/year)
Plutonium-239	Particulate	1.4E-04	1.0E-03	1.4E-07
Strontium-90	Particulate	1.4E-01	1.0E-03	1.4E-04

Table 2. Decontamination Trailer Potential to Emit from 200 East

Radionuclides	Potential Unabated Release (curies/year)	Potential Abated Release (curies/year)	Dose Factor CAP-88C* (millirem/curie)	Unabated Onsite Public Dose (millirem/year)	Abated Onsite Public Dose (millirem/year)
Plutonium-239	1.4E-07	1.4E-07	8.2E+00	2.1E-04	2.1E-04
Strontium-90	1.4E-04	1.4E-04	1.1E-01	1.4E-04	1.4E-04
Total				3.5E-04	3.5E-04

*HNF-3602, Revision 1

The decontamination trailer would operate in a batch mode used in the event of accidental personnel contamination. The actual and potential fugitive emissions from the proposed activities are not expected to be measurable and therefore are not included in Tables 1 and 2.

14.0 LOCATION OF MAXIMALLY EXPOSED INDIVIDUAL

Regulatory Citation: "Identify the MEI by distances and direction from the emission unit(s). The MEI is determined by considering distance, windrose data, presence of vegetable gardens, and meat or milk producing animals at unrestricted areas surrounding the emission unit."

The maximum public receptor (MPR) was assumed to be non-DOE-RL personnel who work within the Hanford Site boundary and who eat food grown regionally. While the decontamination trailers would be stationed at 200 East and 200 West Areas, for conservatism the MPR was assumed to be located at the Washington State University Laboratory in the 300 Area.

15.0 TOTAL EFFECTIVE DOSE EQUIVALENT TO THE MAXIMALLY EXPOSED INDIVIDUAL

Regulatory Citation: "Calculate the TEDE to the MEI using an approved procedure (see WAC 246-247-085). For each radionuclide identified in subsection 8 of this section, determine the TEDE to the MEI for existing and proposed emission controls, and without any emission controls (the potential-to-emit) using release rates from subsection 13 of this section. Provide all input data used in the calculations."

The CAP88 PC computer code was used to model atmospheric releases using Hanford Site specific parameters². The MPR was assumed to be located at Washington State University Laboratory in the 300 Area. Using those calculated unit dose conversion factors; the estimated potential TEDE to the MEI resulting from the unabated fugitive emissions from decontamination trailer activities is 3.5E-4 millirem per year (refer to Table 2).

The TEDE from the 2001 calendar year Hanford Site air emissions (point sources, and diffuse and fugitive sources) was 0.049 millirem (DOE/RL-2002-20). The emissions resulting from personnel decontamination activities in the decontamination trailers in conjunction with other operations on the Hanford Site would not exceed the National Emission Standard of 10 millirem per year (40 CFR 61, Subpart H).

16.0 COST FACTORS OF CONTROL TECHNOLOGY COMPONENTS

Regulatory Citation: "Provide cost factors for construction, operating, and maintenance of the proposed control technology components and system, if a Best available radionuclide control technology or ALARACT demonstration is not submitted with the NOC."

There are no control technology components or systems; therefore, there are no cost factors associated with the proposed activity. The emission controls used during decontamination activities would be administratively defined. These controls consist of ALARA principles and techniques.

² Permission to use Hanford Site specific parameters granted in letter from D.E. Hardesty of EPA to J.B. Hebdon at DOE-RL, dated March 22, 2001, Subject: U.S. Environmental Protection Agency's third response to the new maximally exposed individual definition.

17.0 MONITORING DURATION OR LIFETIME

Regulatory Citation: "Provide an estimate of the lifetime for the facility process with the emission rates provided in this application."

Decontamination trailer operations would be conducted on an as-needed basis; the expected life of the trailers would be approximately 20 years.

18.0 STANDARDS

Regulatory Citation: "Indicate which of the following control technology standards have been considered and will be complied with in the design and operation of the emission unit(s) described in this application: . . ."

ASME/ANSI AG-1, ASME/ANSI N509, ASME/ANSI N510, ANSI/ASME NQA-1, 40 CFR 60 Appendix A Methods 1, 1A, 2, 2A, 2C, 2D, 4, 5, and 17, and ANSI N13.1.

The listed control technology standards have been considered. No abatement control equipment is proposed. The administratively defined ALARA based emission controls proposed for these decontamination activities are adequate to limit and control emissions.

19.0 REFERENCES

DOE/RL-2002-20, *Radionuclide Air Emissions Report for the Hanford Site, Calendar Year 2001*, June 2001, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

HNF-3602, *Volume 1: Calculating Potential to Emit Releases and Doses for FEMPs and NOCs*, July 1999, Fluor Hanford, Richland, Washington.

RPP HNF-4327, *Control of Airborne Radioactive Emissions for Frequently Performed TWRS Work Activities (ALARACT Demonstrations)*, Revision 1A 2002, CH2M HILL Hanford Group, Inc., Richland, Washington.